

| Date of Obs. | Satel- lite. | Phase of Eclipse. | Observatory Mean Time of Phase. h m s | Remarks. |
|------------------|-----------------|----------------------|--|---|
| 1874. Apr. 25 | I. | R | 8 37 47.3 | Cloudless evening. Excellent definition. |
| May 11 | I. | R. | 6 56 57.6 | { Moon near opposition. Observation through thin filmy clouds. |
| „ 15 | II. | R | 8 50 23.4 | Good definition. Bright moonlight. |
| „ 18 | I. | R | 8 51 52.1 | Sky slightly hazy. Pretty good definition. |
| „ 27 | I. | R | 5 15 47.7 | { Twilight. Beautifully clear and definition pretty good. |
| June 3 | I. | R | 7 11 0.8 | { Good definition, and sky beautifully clear. Moon in first quarter, and not far from planet. |
| July 12 | I. | R | 5 44 4.1 | { Sky clear, but planet boiling and somewhat tremulous. Belts pretty distinct. |

Windsor, New South Wales, 1874, April 9.

*Observations of the Zodiacal Light.**

By Vincent Fasel, Esq.

I would beg to submit to the Astronomical Society the following report on the Zodiacal Light, which, in the early months of the present year, has been displayed in this locality (Morges, Switzerland) with no ordinary brilliancy, and for that reason I feel the more induced to transmit my own observations, with the hope that they may prove interesting, and perhaps be of some value for comparison with those recorded in other distant places.

The first opportunity I had of examining the luminous phenomenon was on the evening of the 5th of February last, at 8^h p.m., L.M.T., when it exhibited the usual figure of a slightly inclined cone, with a very faint vertex, reaching, on this occasion, to a line drawn from θ *Arietis* to ξ^2 *Ceti*. The light was very distinct and bright, specially on the axis and towards the horizon, but the outline could not easily be made out. A line drawn from θ to γ *Arietis*, passing near to and to the south of ρ *Piscium* and γ *Pegasi*, down to the horizon, would indicate the northern boundary; the southern one, though not well defined, the light fading off gradually near it, passed from a little south of ξ^2 *Ceti*, taking in α *Piscium*, to about ϕ^1 *Ceti*. Sky clear, a fine starry night, and *Mars* shining brightly in a mass of diffused light. February 6th, at 7^h 15^m p.m., another fine clear evening; the Zodiacal Light more conspicuous than on the previous day, with a better defined conical figure. The contour of the vertex, extremely faint, could but just be traced out to π and μ *Arietis*. The light appeared quite as bright as the *Milky Way*, and with a

* The Paper was accompanied by two Drawings.—ED.

greater intensity nearer the horizon and about *Mars*, which was nearly situated on the axis. At 7^h 20^m just observed a meteor crossing *Aries* from North to South; it was of the second magnitude, and of a red colour.

February 7th, at 7^h 18^m p.m., the Zodiacal Light very distinct, but not so brilliant in the vicinity of the vertex, whilst nearer the horizon it was remarkably luminous, and appeared to have a broader base—quite 30°; *Algenib* within the northern boundary, and 37 *Ceti* just outside the southern. Sky hazy and air calm.

February 9th, at 7^h p.m., the Zodiacal Light unusually brilliant. The smaller stars within it were scarcely visible, and the larger ones, with *Mars* itself, appeared evidently dimmed by its intensity. Yet, notwithstanding that great degree of luminosity, the curvature of the vertex was not easy to trace out. A drawing of the appearance was made on the spot, which will speak for itself, and where it will be seen that the axis lay *close by* and *parallel* to the ecliptic. The light was yellowish white, surpassing in vividness that portion of the *Milky Way* that runs through *Cassiopeia*, which was well situated for comparison. The air very clear, and sky cloudless, except over the distant Alps, a few clouds just crowning the summit of Mont Blanc.

February 10th, at 7^h 14^m p.m., again a vivid appearance of the phenomenon, the conical figure well defined, and *Mars* still situated nearly on the axis. The extent of the light and general features pretty much the same. The air remarkably clear, and the 'bise' * rather sharp. In the early part of the day snow fell.

February 11th, at 7^h 10^m p.m., the Zodiacal Light again conspicuous, but not so bright nor so well defined as on the previous evening. The vertex hardly perceptible, extending only to a line drawn from ρ to σ *Piscium*. While gazing at it a fine meteor of the first magnitude, of the same colour as *Mars*, and with a short train, shot from East to West, within the zodiacal gleam, running with moderate velocity nearly parallel to the axis; passed close by *Mars*, the latter dividing its course into two equal parts. The extent of its path was estimated to be equal to a line drawn from *Algenib* to *Markab*. The effect was very pretty.

Between this and the 5th of next month an interval of cloudy or moonlight nights followed, during which one could now and then catch glimpses of the luminous gleam.

March 5th, at 7^h 30^m p.m., a very favourable view of the Zodiacal Light was obtained, the atmosphere being remarkably transparent and the sky perfectly cloudless. The northern boundary passed through γ *Arietis*, south of ρ *Piscium*, and just close to γ *Pegasi*; the southern, from ξ^2 *Ceti*, passed between α and ξ *Piscium*, directly to the horizon. The vertex reached δ *Arietis*. The light appeared considerably brighter than the *Milky Way*. *Mars* was a little to the south of the axis, between γ and ϵ *Piscium*. At 7^h 40^m a small meteor crossed *Perseus* from North to South.

* North wind.

March 6th, at 7^h 35^m p.m., sky very hazy and clouds round the western horizon. I could but just catch a glimpse of the upper part of the cone.

March 7th, at 7^h 50^m p.m., the southern boundary marked by α *Piscium*, and ξ^2 *Arietis*. The vertex very faint, and appeared to reach ζ *Arietis*.

March 8th, at 8^h 30^m p.m., the light decidedly more brilliant than on the two preceding nights. The northern boundary was boldly marked between γ and β *Arietis*, and the vertex extended nearly to the *Pleiades*.

March 10th, at 8^h p.m., as the twilight disappeared the Zodiacal Light became discernible, presenting the same features as before with regard to the extent and luminosity. The vertex appeared to involve τ^1 and τ^2 *Arietis*. *Mars* about the middle of the cone, and somewhat to the left of the axis.

March 14th, at 7^h 45^m p.m., an exceptionally fine evening, the sky perfectly cloudless, and the air calm; such were the conditions under which I witnessed a fine display of the Zodiacal Light. It was brighter and more conspicuous than I have ever seen it on any former occasion. Its colour was of a yellowish white. A line drawn from ρ to σ *Piscium* would show the extent of the brighter portion of the cone up to ν , μ , π *Arietis*. Another drawing of the appearance was made, as on the 9th of last month. I traced the boundaries on maps 2, 3, and 4 of Mr. Proctor's *New Star Atlas*, and was pleased to see that it could be done with sufficient accuracy to give a correct idea of the display. These two tracings I beg to enclose along with the above report, with the hope that they will prove acceptable, and will also excuse me for prolixity.

My place of observation was the same as that described in the *Monthly Notices*, Vol. xxxiii. p. 100.

Morges, Switzerland,
1874, June.

P.S.—Position of Morges approximately.

| | | | | |
|------|-----|----|--------------|---|
| 46° | 30' | 0" | N. Latitude. | |
| 6 | 31 | 0 | E. | } of Greenwich in Longitude (mean time). |
| h | m | s | | |
| or 0 | 26 | 4 | fast | |

Discovery of Minor Planet (138). By M. Perrotin.

This planet was discovered at the Observatory of Toulouse on May 19. The observed places on May 19 and 20 are as follow :

| 1874. | Mean Time at Toulouse. | | R.A. | | | N.P.D. | |
|--------|---------------------------|---|------|----|----|--------|----|
| | h | m | h | m | s | ° | ' |
| May 19 | 10 | 0 | 16 | 28 | 30 | 112 | 48 |
| 20 | 12 | 0 | 16 | 27 | 28 | 112 | 47 |